

Notice of Allowability

Application No.

09/819,977

Examiner

Patrick J Connolly

Applicant(s)

ABE ET AL.

Art Unit

2877

[Handwritten signature]

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 31 August 2004.
2. ☒ The allowed claim(s) is/are 1-24.
3. ☒ The drawings filed on 29 March 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

[Handwritten signature]
GREGORY J. TOATEL, JR.
PATENT EXAMINER 582877
9/30/04

DETAILED ACTION

Terminal Disclaimer

The terminal disclaimer filed on August 31, 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,271,047 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

Claims 1-24 allowed.

The following is an examiner's statement of reasons for allowance:

As to claim 1, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for detecting a process endpoint from a spectral waveform obtained by irradiating a substrate face with light of multiple wavelength components including: a characteristic quantity extraction component for extracting two or more of said quantities from the spectral waveform and a logical operation component for using the two or more said quantities to perform an operation and determine the process endpoint, in combination with the rest of the limitations of claim 1.

As to claim 2, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for detecting a process endpoint from a spectral waveform obtained by irradiating a substrate face with light of multiple wavelength components including: a characteristic quantity extraction component for extracting two or more of said quantities from the spectral waveform and a logical operation component for using the two or more said quantities to perform an operation and determine the process endpoint, in combination with the rest of the limitations of claim 2.

Art Unit: 2877

As to claim 7, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for detecting a process endpoint from a signal waveform obtained by irradiating a substrate face with light including: a characteristic quantity extraction component for extracting a characteristic quantity from the signal waveform, where said quantity is one of the absolute difference of local adjacent minima maxima pairs, a sum of various said absolute difference for a plurality of said pairs and an integral value of the signal waveform, in combination with the rest of the limitations of claim 7.

As to claim 23, the prior art of record, taken alone or in combination, fails to disclose or render obvious, a method for detecting a process endpoint from a signal waveform obtained by irradiating a substrate face with light including: a first stage in which two or more characteristic quantities are extracted from the signal waveform; and a second stage in which the two or more characteristic quantities are used to perform a logical operation and determination, in combination with the rest of the limitations of claim 23.

As to claim 24, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method for detecting a process endpoint in a layer formation process or a removal process from a change in a characteristic quantity extracted from a signal waveform obtained by irradiating a substrate face with light, wherein the signal waveform is a spectral waveform and where said quantity is one of the absolute difference of local adjacent minima maxima pairs, a sum of various said absolute difference for a plurality of said pairs and an integral value of the signal waveform, in combination with the rest of the limitations of claim 24.

Art Unit: 2877

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Connolly whose telephone number is 571.272.2412. The examiner can normally be reached on 9:00 am - 7:00 pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J Toatley, Jr. can be reached on 571.272.2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pjc
01.24.2004


GREGORY J. TOATLEY, JR.
PRIMARY EXAMINER
2877